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ABSTRACT

This twenty-fourth in a series of twenty-nine learning modules on instructional execution is designed to give secondary and postsecondary vocational teachers help in developing the competencies needed to operate filmstrip and slide equipment and to present information effectively by using filmstrips and slides. The terminal objective for the module is to present information with filmstrips and slides in an actual school situation. Introductory sections relate the competencies dealt with here to others in the program and list both the enabling objectives for the three learning experiences and the resources required. Materials in the learning experiences include required reading, worksheets, performance checklists, and the teacher performance assessment form for use in evaluation of the terminal objective. (The modules on instructional execution are part of a larger series of 100 performance-based teacher education (PBTE) self-contained learning packages for use in preservice or inservice training of teachers in all occupational areas. Each of the field-tested modules focuses on the development of one or more specific professional competencies identified through research as important to vocational teachers. Materials are designed for use by teachers, either on an individual or group basis, working under the direction of one or more resource persons/instructors.) (BM)

MODULE

C-24

Present Information with Filmstrips and Slides

MODULE C-24 OF CATEGORY C—INSTRUCTIONAL EXECUTION
PROFESSIONAL TEACHER EDUCATION MODULE SERIES

The Center for Vocational Education
The Ohio State University

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1977

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FOREWORD

This module is one of a series of 100 performance-based teacher education (PBTE) learning packages focusing upon specific professional competencies of vocational teachers. The competencies upon which these modules are based were identified and verified through research as being important to successful vocational teaching at both the secondary and post-secondary levels of instruction The modules are suitable for the preparation of teachers in all occupational areas

Each module provides learning experiences that integrate theory and application, each culminates with criterion referenced assessment of the teacher's performance of the specified competency The materials are designed for use by individual or groups of teachers in training working under the direction and with the assistance of teacher educators acting as resource persons. Resource persons should be skilled in the teacher competency being developed and should be thoroughly oriented to PBTE concepts and procedures in using these materials.

The design of the materials provides considerable flexibility for planning and conducting performance-based preservice and inservice teacher preparation programs to meet a wide variety of individual needs and interests. The materials are intended for use by universities and colleges, state departments of education, post-secondary institutions, local education agencies, and others responsible for the professional development of vocational teachers Further information about the use of the modules in teacher education programs is contained in three related documents **Student Guide to Using Performance-Based Teacher Education Materials, Resource Person Guide to Using Performance-Based Teacher Education Materials** and **Guide to Implementation of Performance-Based Teacher Education.**

The PBTE curriculum packages are products of a sustained research and development effort by The Center's Program for Professional Development for Vocational Education Many individuals, institutions, and agencies participated with The Center and have made contributions to the systematic development, testing, revision, and refinement of these very significant training materials. Over 40 teacher educators provided input in development of initial versions of the modules, over 2,000 teachers and 300 resource persons in 20 universities, colleges, and post-secondary institutions used the materials and provided feedback to The Center for revision and refinement

Special recognition for major individual roles in the direction, development, coordination of testing, revision, and refinement of these materials is extended to the following program staff James B Hamilton, Program Director, Robert E Norton, Associate Program Director, Glen E. Fardig, Specialist; Lois Harrington, Program Assistant; and Karen Quinn, Program Assistant. Recognition is also extended to Kristy Ross, Technical Assistant; Joan Jones, Technical Assistant; and Jean Wisenbaugh, Artist for their contributions to the final refinement of the materials Contributions made by former program staff toward developmental versions of these materials are also acknowledged Calvin J Cotrell directed the vocational teacher competency research studies upon which these modules are based and also directed the curriculum development effort from 1971–1972 Curtis R. Finch provided leadership for the program from 1972–1974

Appreciation is also extended to all those outside The Center (consultants, field site coordinators, teacher educators, teachers, and others) who contributed so generously in various phases of the total effort Early versions of the materials were developed by The Center in cooperation with the vocational teacher education faculties at Oregon State University and at the University of Missouri-Columbia Preliminary testing of the materials was conducted at Oregon State University, Temple University, and University of Missouri-Columbia.

Following preliminary testing, major revision of all materials was performed by Center Staff with the assistance of numerous consultants and visiting scholars from throughout the country

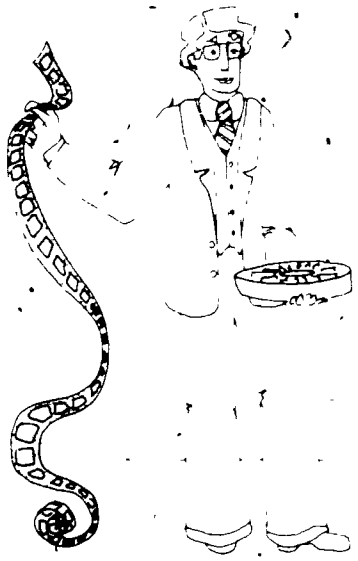
Advanced testing of the materials was carried out with assistance of the vocational teacher educators and students of Central Washington State College, Colorado State University, Ferris State College, Michigan, Florida State University, Holland College, P E I , Canada, Oklahoma State University, Rutgers University, State University College at Buffalo, Temple University, University of Arizona, University of Michigan-Flint, University of Minnesota-Twin Cities, University of Nebraska-Lincoln, University of Northern Colorado, University of Pittsburgh, University of Tennessee, University of Vermont, and Utah State University

The Center is grateful to the National Institute of Education for sponsorship of this PBTE curriculum development effort from 1972 through its completion Appreciation is extended to the Bureau of Occupational and Adult Education of the U S. Office of Education for their sponsorship of training and advanced testing of the materials at 10 sites under provisions of EPDA Part F, Section 553 Recognition of funding support of the advanced testing effort is also extended to Ferris State College, Holland College, Temple University, and the University of Michigan-Flint

Robert E Taylor
Director
The Center for Vocational Education

INTRODUCTION

Audiovisual equipment and materials are versatile tools which can be used in a variety of ways and which help ensure that your lessons will be more effective and interesting Filmstrips and slides are two audiovisual devices which can be put to good use in the vocational classroom or laboratory on a group or individual viewing basis



Slides and filmstrips are composed of "still" pictures and, as such, are especially useful in illustrating concepts and principles when motion is not critical

There are a number of advantages to using filmstrips and slides: (1) filmstrips are an excellent device for presenting close-ups of key steps involved in an otherwise difficult-to-view or dangerous process; (2) slides can serve that same function, but, additionally, are an excellent means of bringing a "field trip" into the classroom since they can be made by the teacher; (3) the order in which slides are presented is flexible, and individual slides can be removed easily and replaced with updated slides, (4) the equipment is portable, relatively inexpensive, and can be used in the average classroom as a part of normal classroom instruction, (5) these visuals allow students to see, as well as hear about, the material being covered, (6) students can be involved in the classroom activities by preparing slides or operating the equipment, and (7) students can use the equipment and materials on an individual basis Filmstrips and slides can be used at any point in the lesson (introduction, body, summary), and they can be very effectively used in combination with other types of media such as the tape recorder

This module is designed to help you become competent in operating filmstrip and slide equipment, and in using filmstrips and slides to present information in the classroom or laboratory It will also help you gain skill in determining when a filmstrip or a set of slides is the best (or one of the best) audiovisual device to use for a particular lesson

ABOUT THIS MODULE

Objectives

Terminal Objective: In an actual school situation, present information with filmstrips and slides. Your performance will be assessed by your resource person, using the Teacher Performance Assessment Form, pp. 49–52 (*Learning Experience V*).

Enabling Objectives:

1. After completing the required reading, set up and operate a filmstrip projector (*Learning Experience I*)
2. After completing the required reading, present information with filmstrips in a practice situation (*Learning Experience II*)
3. After completing the required reading, set up and operate a slide projector (*Learning Experience III*)
4. After completing the required reading, present information with slides in a practice situation (*Learning Experience IV*)

Prerequisites

To complete this module, you must have competency in developing a lesson plan and in selecting student instructional materials. If you do not already have these competencies, meet with your resource person to determine what method you will use to gain these skills. One option is to complete the information and practice activities in the following modules:

- *Develop a Lesson Plan*, Module B–4
- *Select Student Instructional Materials*, Module B–5

Resources

A list of the outside resources which supplement those contained within the module follows. Check with your resource person (1) to determine the availability and the location of these resources, (2) to locate additional references in your occupational specialty, and (3) to get assistance in setting up activities with peers or observations of skilled teachers, if necessary. Your resource person may also be contacted if you have any difficulty with directions, or in assessing your progress at any time.

Learning Experience I

Required

A filmstrip projector to set up and operate.

A screen to use with the projector

A filmstrip for use in setting up and operating the projector

A measuring device (ruler, yardstick, tape measure) for use in setting up the projector

Optional

Filmstrip/tape combination equipment to set up and operate

An audiovisual expert with whom you can discuss the uses and operation of filmstrip projectors

An audiovisual equipment dealer whom you can visit or write to concerning current filmstrip projector equipment and supplies

Learning Experience II

Required

A filmstrip projector to use during a lesson

A screen to use with the projector

A filmstrip with which to present information in a lesson

A resource person to role-play a student to whom you are presenting a lesson and to evaluate your performance in using filmstrips to present information

Optional

A resource person to review the adequacy of your lesson plan

A teacher skilled in presenting information with filmstrips whom you can observe

Learning Experience III

Required

A slide projector to set up and operate

A screen to use with the projector

A group of slides for use in setting up and operating the projector

A measuring device (ruler, yardstick, tape measure) for use in setting up the projector

Optional

Slide/tape combination equipment to set up and operate.

An audiovisual expert with whom you can discuss the uses and operation of slide projectors

An audiovisual equipment dealer whom you can visit or write to concerning current slide projector equipment and supplies.

Learning Experience IV

Required

A slide projector to use during a lesson

A screen to use with the projector

A group of slides with which to present information in a lesson.

A resource person to role-play a student to whom you are presenting a lesson and to evaluate your performance in using slides to present information

Optional

A resource person to review the adequacy of your lesson plan.

A teacher skilled in presenting information with slides whom you can observe

Learning Experience V

Required

An actual school situation in which you can present information with filmstrips and slides

A resource person to assess your competency in presenting information with filmstrips and slides

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This module covers performance elements numbers 124, 125 from Calvin J. Cotrell *et al.*, *Model Curricula for Vocational and Technical Education Report No. V* (Columbus, OH: The Center for Vocational Education, The Ohio State University, 1972). The 384 elements in this document form the research base for all The Center's PBTE module development.

For information about the general organization of each module, general procedures for their use, and terminology which is common to all 100 modules, see About Using The Center's PBTE Modules on the inside back cover.

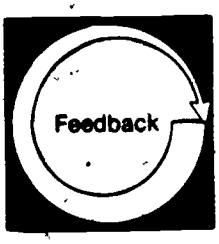
Learning Experience I

OVERVIEW

After completing the required reading, set up and operate a filmstrip projector.

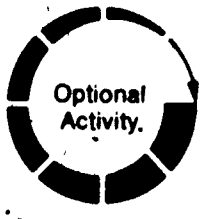
You will be reading the information sheet, Operating the Filmstrip Projector, pp. 8–10.

You will be setting up and operating a filmstrip projector by completing the exercises specified in the Filmstrip Projector Worksheet, pp. 11–14.



You will be evaluating your competency in setting up and operating a filmstrip projector, using the Filmstrip Projector Operation Checklist, pp. 15–16.

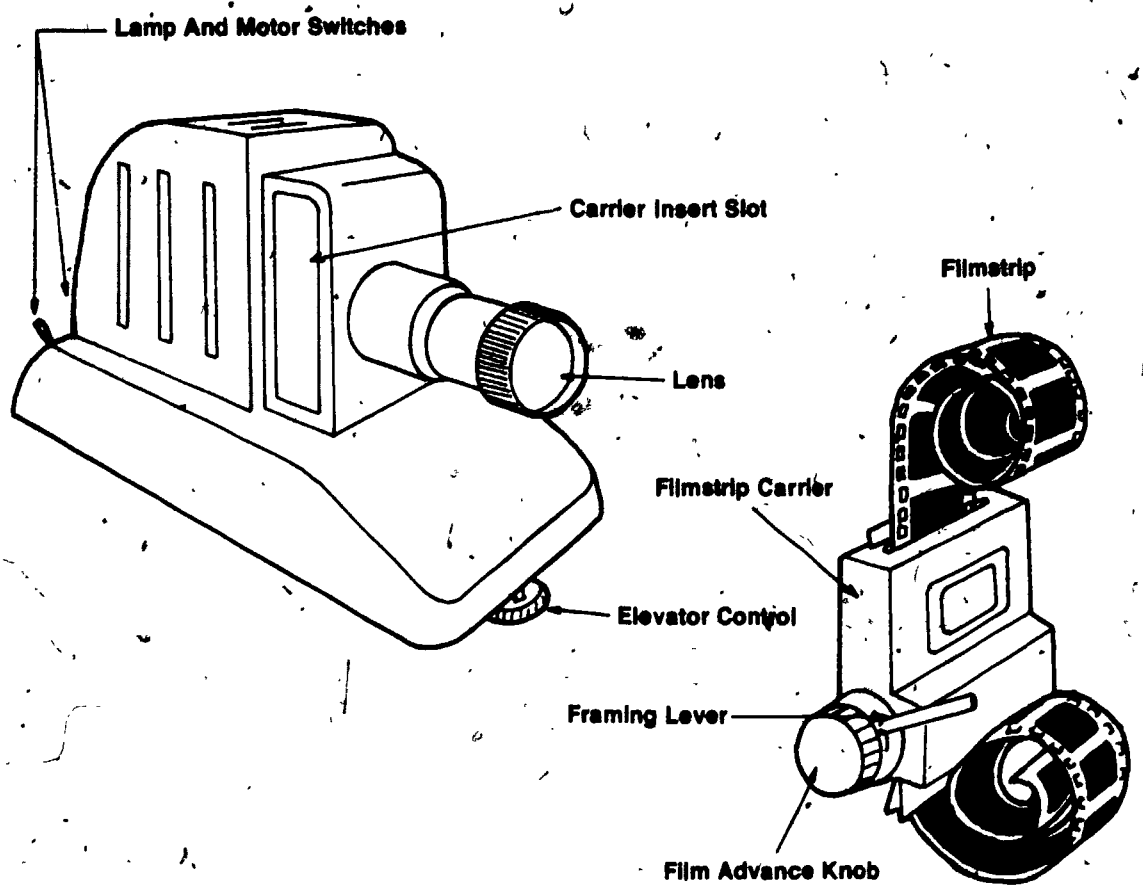
You may wish to locate and meet with a person with expertise in the area of audiovisuals for the purpose of discussing further the uses and operation of filmstrip projectors.



You may wish either to visit an audiovisual equipment dealer or to write to a dealer for catalogues describing the latest types of equipment and supplies available.

FIGURE 1

FILMSTRIP EQUIPMENT



Activity

For information explaining how to select, set up, and operate the equipment and materials necessary for a presentation which uses a filmstrip projector, read the following information sheet

OPERATING THE FILMSTRIP PROJECTOR

Projection Principles

The filmstrip projector uses a direct projection system: the light travels in a straight line from the lamp . . . through the filmstrip . . . through the lens . . . to the screen. Figure 1 shows a combination filmstrip/slide projector and a filmstrip carrier. The metal carriers—one for filmstrips, one for slides—fit into the **carrier insert slot.**

Projector Placement

The filmstrip projector should be placed toward the back of the room on a high table. Exactly where it is placed depends on a number of variables. These variables include room size, darkness of the room, size of group viewing the filmstrip; and screen size and placement

The projector is placed properly if (1) neither the projector nor the projectionist is blocking students' view; (2) the projected image is well centered on the screen, (3) the projected image is nearly filling the screen; (4) the projected image is clear and well focused, and (5) the projected image is large enough to be seen easily by all viewers.

Projection Materials

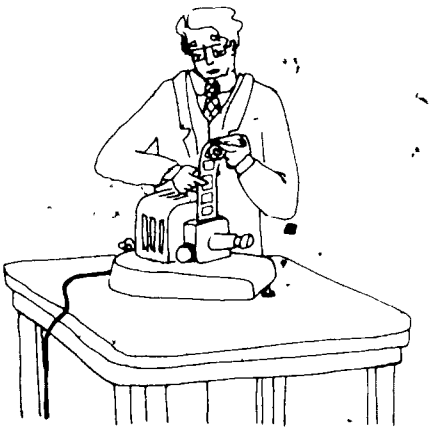
For the most part, the filmstrips you will use will be 35 millimeter, single-frame, commercially-produced filmstrips There are a number of sources available to you for locating educational filmstrips. These include—

- *Index to 35mm Educational Filmstrips*
  R.R. Bowker Co
  1180 Avenue of the Americas
  New York, New York 10036
- *Educators Guide to Free Filmstrips*
  Educators Progress Service
  Randolf, Wisconsin 53956
- *Educational Sound Filmstrip Directory*
  DuKane Corporation, Audio Visual Division
  St. Charles, Illinois 60174
- Library of Congress Motion Pictures and Filmstrips
- Instructional materials centers at state departments of education and universities
- Colleagues
- Curriculum guides

These catalogues and others available from commercial publishers, will provide you with a comprehensive listing of filmstrips relevant to your occupational specialty.

Operation Procedures

The filmstrip projector generally comes in a carrying case. After removing the projector from the case, locate the power cord and plug it in. Select the proper carrier and slide it into the carrier insert slot. The filmstrip is then threaded into the slot at the top of this carrier Hold the filmstrip (touching **only** the outside edges) so that the film comes off the roll counterclockwise, and insert it into the slot until the filmstrip engages the sprocket teeth of the film advance mechanism



Make sure the sprocket teeth are lined up with the holes in the filmstrip edges so that the filmstrip will not be damaged Turn on the motor and lamp. Then, use the film advance knob to advance the filmstrip until a picture appears on the screen. Each time you turn the advance knob until it clicks, the filmstrip will advance one frame. Since it is advanced by hand, you can show each frame for however long students need in order to read captions, take notes, or ask questions.

To enlarge the image on the screen, move the projector away from the screen. To reduce the image on the screen, move the projector closer to the screen To raise or lower the position of the

image on the screen, adjust the **elevator control** at the front of the projector.

To focus the screen image, rotate the lens or turn the focus knob, depending on the specific projector you are using. If two frames appear on the screen at the same time, the framing can be adjusted with the framing lever located next to the film advance knob.

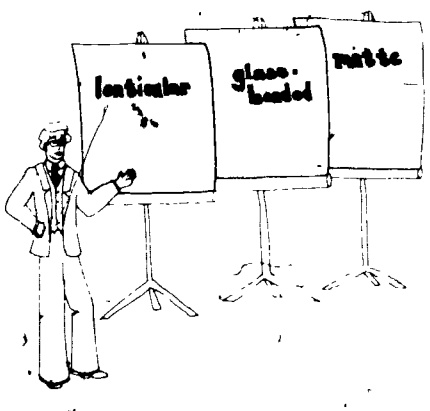
After you have shown the filmstrip, you need to rewind the filmstrip, being careful to handle only the outside edges. You also need to let the machine cool before putting it away. In some machines, you can turn off the machine completely, and the fan will continue to run automatically until the bulb is cooled. In other machines, you can turn off **just** the lamp. Then, after a few minutes, you can turn off the fan manually. In still other machines, you will have to allow the projector to stand until the lamp cools.

Once the lamp is cooled, readjust the lens and the elevator control to their original positions. Remove the carrier (if necessary), unplug the power cord, and return the projector, the carrier, and the cord to the carrying case.

These are **general** operating procedures Before attempting to operate any **specific** model of filmstrip projector, it is a good idea to check the operating manual for that model

Projection Screen

The image projected from a filmstrip projector will fill a 52" by 70" screen at a distance from projector to screen of 30 feet. There are three basic types of screens: matte, glass beaded, and lenticular. A **matte** screen is like a dull white cloth and will provide a good, bright picture over a wide viewing angle. In other words, persons seated at the center of the room and at either side of the room will see the same bright picture. A **glass beaded** screen has a surface covered with tiny glass beads. It gives a much brighter picture than the matte screen, but only to persons seated along the line of projection. The **lenticular** screen has tiny ridges molded into the surface. It gives a bright image to viewers from all angles.



Since the filmstrip projector is operated in a partially darkened room, any one of these types of screens can be used. If you have more than one type of screen available, consider how your students will be seated and select the screen which will produce the best picture for those viewing angles.

If your projector is going to be pointed at an angle toward the screen, a keystone effect will be produced. Keystoning refers to a distorted image in which the top of the image appears larger than the bottom because the top part of the image is further away from the projector. This can be corrected by moving the top of the screen forward.

Machine Maintenance

The only part of the projector that is likely to malfunction and need to be repaired by the teacher is the bulb It is always wise to have a spare bulb handy in case the bulb should burn out. To change the bulb, wait until it is cooled, unplug the machine, and then remove the burned out bulb. Use a cloth to handle the new bulb during replacement since fingerprints or other foreign substances on the bulb cause light to be reflected back into the bulb. This increases the heat and shortens the projection life.

Jarring or bumping the bulb while it is hot can also shorten its projection life. The jarring can cause the filaments in a hot bulb to fuse together. If this happens, the bulb will probably burn out the next time the machine is turned on.

The only other maintenance concern of the teacher is keeping the lens clean. The lens can be cleaned with a lens tissue and alcohol or lens fluid.

The following worksheet is designed to help you become competent in operating the filmstrip projector. No one need see this worksheet unless you choose to show it to them, so do not be reluctant to record what actually happens, right or wrong. The sheet is not intended to show proof that you did everything perfectly the first time. It is intended to help you to organize your knowledge about the operation of filmstrip equipment, to help you apply that knowledge to actual equipment, to point out to you where you have gaps in your knowledge, and to help you determine how to fill those gaps. Completed thoughtfully and thoroughly, this sheet should make an excellent reference for you in the future. Read the directions carefully and then complete each of the 21 exercises.

FILMSTRIP PROJECTOR WORKSHEET

Directions: Locate a filmstrip projector, a screen to use with the projector, a filmstrip, and a measuring device (e.g., ruler, yardstick, tape measure, etc.). (If there is filmstrip/tape combination equipment available, you may wish to work with that equipment also, but it is not required.) Arrange for the equipment and material to be placed in the room in which you will be working with them. Complete each of the following exercises using the actual equipment and material. Each exercise requires a short response. Please respond fully, but briefly, and make sure you respond to all parts of each item. Do **not** answer simply YES or NO; explain your responses. Should you have any difficulty with an exercise, make a note of that problem.

1. What is the make and model of the filmstrip projector with which you are working? Is it for filmstrips only or for both filmstrips and slides?

2. Is there an operating manual? Does it contain any information that is different from, or was not covered in, the information sheet? If so, briefly describe that information.

3. What type of table is being used to hold the projector (portability, height, etc.)?

4. Describe the filmstrip which you are using (black and white or color; number of frames, etc.).

5. Describe the type of screen with which you are working (matte, beaded, or lenticular; how is it mounted; what size is it, etc?).

6 Set up the screen for use. Briefly describe any special procedures involved (e.g., "There is a release button which must first be pushed.") If the screen is portable, where have you placed it and why?

7 What type of lighting are you using in the room? Is this type of lighting appropriate for using the filmstrip projector? Why or why not?

8. Remove the projector from its case and locate the projection lamp. Remove the lamp from the projector and then replace it. Describe the lamp's location and the procedure for removing it.

9. Locate the on/off control on the projector. How many positions does it have and what are they (e.g., "fan," "lamp," etc.)? What type of control is it (e.g., switch, knob, etc.)?

10. Plug the machine in and turn it on. At which positions of the on/off control does the fan operate?

11. Does the projector have a separate filmstrip carrier which must be inserted into the machine? If so, describe the procedure for placing the carrier into the carrier insert slot.

12. Thread the filmstrip into the projector. Describe the threading p[illegible], the controls involved (e.g., film advance knob) and the location of these controls.

13. Focus the image on the screen. Describe the procedure for focusing.

14. Raise and/or lower the screen image so that it is centered on the screen. Describe the method for elevating and lowering the image.

13

15. Locate the framing lever. Adjust it and describe what happens to the screen image when the lever is moved. Then, frame the image properly.

16. Move the projector gradually closer to the screen, refocusing as you get closer. How close to the screen can you get before either (1) you can no longer get the picture in focus, or (2) the material is too small to see?

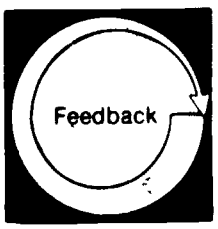
17. Move the projector gradually away from the screen, refocusing as you get farther away. How far away from the screen can you get before either (1) you can no longer get the picture in focus, or (2) the image is too large for the screen?

18. At what distance (from screen to projector) do you get the best screen image?

19 Are you using the type and size of screen recommended for use with the filmstrip projector according to this module? If not, is this affecting your ability to project a quality image? How is the quality affected?

20. Assume you have a class of 20 students. Arrange the seating, the screen, the projector and the lighting as you would if you were using the projector to present information to that group of 20. Turn on the projector and project the filmstrip. Make any necessary adjustments to the focus, etc **NOTE:** At this point, move to the explanation of Part I in the Feedback that follows

21. Remove the filmstrip and replace the projector and the filmstrip in their cases Then, move to the explanation of Part II in the Feedback that follows.



Part I: After you have completed the first 20 items on the worksheet, use Part I of the Filmstrip Projector Operation Checklist, p. 15, to evaluate your work **Part II:** After you have completed item 21, use Part II of the Filmstrip Projector Operation Checklist, p 16, to evaluate your work

FILMSTRIP PROJECTOR OPERATION CHECKLIST

Name _____

Date _____

Resource Person _____

Directions: Place an X in the YES or NO box to indicate whether each item was performed successfully or not

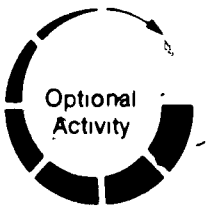
Part I	Yes	No
When you were locating parts on the filmstrip projector, you remembered to:		
1. handle the projection lamp with a soft cloth	☐	☐
2. be careful not to jar the machine (and lamp) while the lamp was hot	☐	☐
When you were threading the filmstrip into the projector, you made sure that:		
3. you handled the filmstrip only by its outside edges	☐	☐
4. the filmstrip holes were properly lined up with the sprocket teeth	☐	☐
The filmstrip projector, screen, and room are arranged for the group of 20 so that:		
5. the projector is at the back of the room	☐	☐
6. the projector is on a high table	☐	☐
7. the projector and the projectionist will not block the view of anyone in the class	☐	☐
8. the projected image is large enough for all viewers to see it clearly	☐	☐
9. the image is well centered on the screen	☐	☐
10. there is no keystoning effect produced	☐	☐
11. the room is nearly dark	☐	☐
The projected image is:		
12. clear and sharp	☐	☐
13. bright	☐	☐
14. well focused	☐	☐

(Return to the worksheet and complete item #21.)

Part II

	Yes	No
Before returning the material and the projector to their cases, you:		
15. waited for the bulb to cool	☐	☐
16. advanced the filmstrip all the way through the carrier and then rewound it by hand, touching only the outside edges of the filmstrip	☐	☐
17. returned the lens (focus) and elevator control to their original positions	☐	☐
18. removed the filmstrip carrier if necessary	☐	☐
19. unplugged the machine and stored the cord	☐	☐

LEVEL OF PERFORMANCE: All items should receive YES responses. If any item receives a NO response, correct that condition using the actual equipment and materials. If you have trouble correcting the condition, check with your resource person or someone with expertise in the area of audiovisuals.



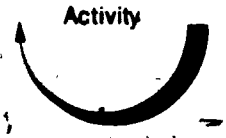
You may wish to contact your resource person, or someone else you or your resource person may know of with expertise in the area of audiovisuals. This person could discuss with you special techniques or helpful hints that can be of use to you when you work with the filmstrip projector.

You may wish to check into the latest advancements in filmstrip projectors. You may also wish to identify filmstrips that are currently available. If there is an audiovisual equipment dealership in your vicinity, you may wish to visit them and look over their equipment, or to make arrangements to have one of their salespersons talk to you. If you cannot make such a visit, you could write to one or more of the major manufacturers of filmstrips and filmstrip equipment, asking for catalogues.

Learning Experience II

OVERVIEW

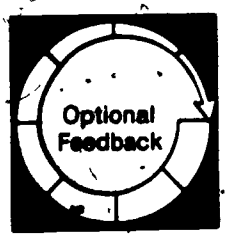
After completing the required reading, present information with filmstrips in a practice situation.



You will be reading the information sheet, Using the Filmstrip Projector as an Instructional Device, pp. 19–21.

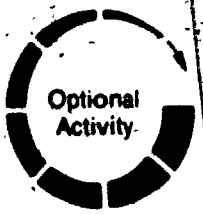
You will be selecting an objective in your occupational specialty that lends itself to a filmstrip presentation.

You will be selecting, modifying, or developing a lesson plan designed to achieve that objective using a filmstrip to illustrate the lesson.



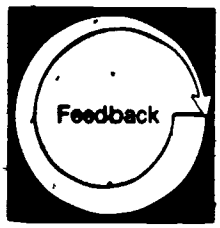
You may wish to have your resource person review the adequacy of your plan.

You will be obtaining the necessary filmstrip materials, and making arrangements to secure the necessary equipment.



You may wish to arrange through your resource person to visit a classroom in which a teacher experienced in the use of filmstrips is presenting information using filmstrip materials and equipment.

You will be presenting your lesson to your resource person.



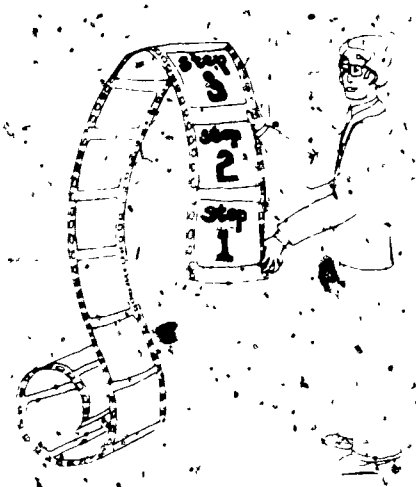
Your competency in presenting information with filmstrip materials and equipment will be evaluated by your resource person, using the Presentation Checklist: Filmstrips, pp. 23–24.

Activity

For information describing the general and specific uses of filmstrip materials and equipment in presenting information, and explaining the procedures for their classroom use, read the following information sheet.

USING THE FILMSTRIP PROJECTOR AS AN INSTRUCTIONAL DEVICE

If motion is not an important part of the concept being presented, filmstrips can be very effective learning tools. This is especially true if the concept needs to be presented step by step. By being aware of the advantages and disadvantages associated with using filmstrips and filmstrip projectors, you can easily decide when filmstrips would be an appropriate means of illustrating a particular lesson and of helping you to achieve the lesson objective(s).



Advantages

A filmstrip can do many of the same things as a film, but **without the motion**. Through photography or artists' drawings, a filmstrip can show many things, such as (1) a close-up of an item not ordinarily visible to the naked eye; (2) the key steps in a process which ordinarily occurs at too rapid a speed to be seen clearly, (3) the key steps in a process which ordinarily occurs slowly over a long period of time; (4) abstract concepts in a concrete way; and (5) dangerous skills or operations. Furthermore, like film, the filmstrip is a continuous strip with the frames arranged permanently in a logical, sequential viewing order.

The filmstrip projector is small, lightweight, quite simple to operate, and relatively inexpensive. It can be operated in a room which is not totally darkened. Therefore, it can be used in a normal classroom either for group presentations or individual viewing. Since the projector operates by advancing the filmstrip one frame at a time, usually manually, each frame can be studied or discussed individually for as long as is needed.

The filmstrips are also simple to use. They are easy to store, easy to handle, and easy to thread into the projector. There is a fairly large variety of filmstrips available commercially, covering a wide range of topics. The cost of purchasing filmstrips is usually low enough to be within department, school, or district budgets. Although the sequence of the filmstrip frames is fixed, it is possible to use only a few selected frames from the strip.

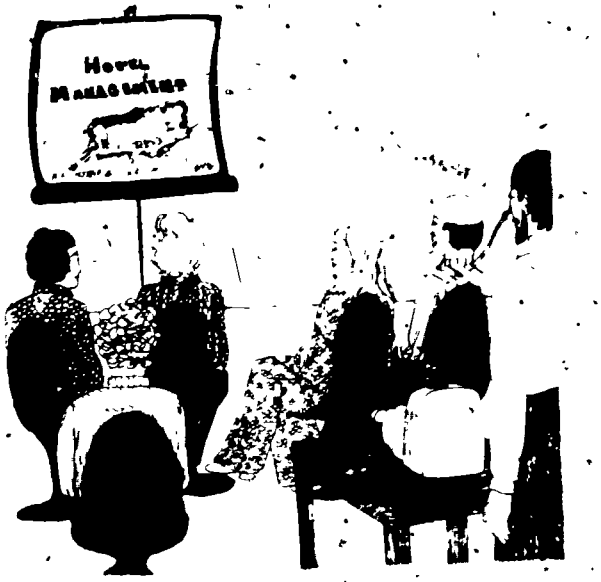
Many filmstrips now are produced with an accompanying audiotape (usually cassette) which explains or discusses the material on each frame of the filmstrip. An audible beep on the tape indicates to you when you are to advance the filmstrip. Furthermore, sound filmstrip equipment is now available which shows the filmstrip, plays the tape, and includes its own screen and speaker — all in one piece of equipment.

On this new equipment, an inaudible beep on the tape automatically advances the filmstrip equipment. With such equipment, individual viewing of filmstrip/tape presentations is far simpler and more practical. An additional advantage to using a filmstrip in combination with either a teacher-made or commercially-produced tape, is that it does not penalize the student who is a poor reader.

Disadvantages

Since a filmstrip is made of a fixed sequence of frames, it is not as flexible as other media such as slides or transparencies, for instance. It is not easy to show the filmstrip frames in a different order.

With equipment on which each frame of the filmstrip must be advanced by hand, someone must be with the projector. This causes that person to divide his/her attention between viewing the filmstrip and operating the projector. Since each frame can be held on the screen indefinitely for students to study, this does not constitute a major problem for a student operator. If the teacher is operating the projector, it can be a disadvantage since he/she would be at the back of the room with only limited eye contact with students.



When using filmstrips, you will probably have to rely on commercially-produced products since filmstrips cannot be easily teacher-made. Commercial filmstrips are usually purchased from the producer rather than rented from a distributor. Therefore, unless there is money in the budget for you to purchase a needed filmstrip, or unless it is already available within the district or at a local library, you may not be able to obtain the filmstrip you need. Another potential problem with commercially-produced filmstrips is that they may not always meet the exact objectives of your lesson or the specific needs, interests, and abilities of your students.

If you are using a filmstrip/tape presentation in the classroom, it is not as simple to leave each frame on the screen for as long as students need in order to comprehend the content. The pace of the taped presentation controls the pace of the filmstrip presentation. Of course, the tape recorder can always be stopped if more time is needed for viewing a particular frame. But, this can break the flow of the audio presentation, and it is a bit more complicated in terms of operating procedures.

Finally, although filmstrips can be effective in presenting certain things, they are just not as compelling and motivating as the films and television presentations that today's students are accustomed to. This need not be a disadvantage, however, if they are used well by the teacher.

Classroom Procedures

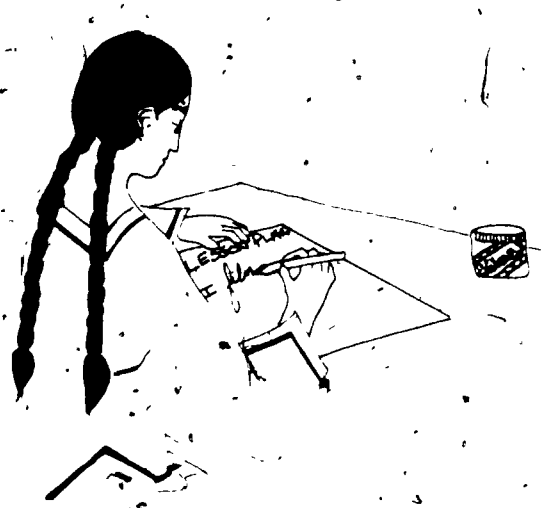
The procedures you follow in using the filmstrip projector start with the thorough preplanning and preparation activities that precede the actual showing of the filmstrip. You should **first** develop a unit of instruction[1] and a lesson plan. **Then,** you should select instructional materials that help meet the objectives of the unit and lesson, and meet the needs and interests of students.[2] Thus, in order for the filmstrip projector to be used effectively, its use must fit the needs of the lesson, and the filmstrip(s) used should do all or at least most of the following:

- meet the lesson objectives
- fit students' needs, interests, and abilities
- provide concrete experiences
- motivate or arouse interest
- develop continuity of thought
- clarify meaning and new vocabulary
- provide variety in learning
- save instructional time
- provide experience not as easily obtained by some other instructional device
- be up to date
- be presented at a logical point in the lesson
- be clear, logical, concise, error free, and attractive

If you determine that a filmstrip would, in fact, help to meet the lesson objectives, your first step is to locate potential filmstrips, view them, and evaluate their ability to meet the above criteria. Once you have located an appropriate filmstrip, you can begin to plan how it will fit into your les-

1 To gain skill in developing a unit of instruction, you may wish to refer to Module B-3 *Develop a Unit of Instruction*.

2 To gain skill in determining the needs and interests of students, you may wish to refer to Module B-1, *Determine Needs and Interests of Students*.



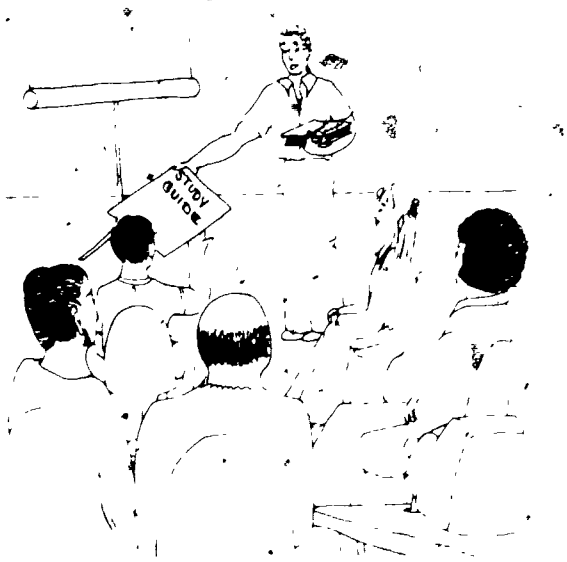
sort. Your lesson plan needs to answer the following types of questions.

- At what point in the lesson will be filmstrip be shown?
- How are you going to prepare the students for the filmstrip?
- Are you going to show the filmstrip straight through and discuss it afterwards? . show the filmstrip through once (perhaps with a tape) and then reshow it more slowly (without the tape) with time provided to discuss or ask questions as each frame is shown? . show the filmstrip slowly the first time through, allowing time for questions and discussion?
- Are students going to read the printed commentary written on each frame aloud or to themselves? . is the teacher going to read it? . . will the filmstrip be accompanied by a tape?
- What method of summary are you going to use?
- How are you going to evaluate what the students have learned from the filmstrip?
- In what way(s) are you going to get feedback on the students' evaluation of the filmstrip?
- Are there any follow-up activities you can plan which grow out of the filmstrip presentation?

Some filmstrips are accompanied by teachers' guides or programmed instruction. Before you use such materials, either with a class or for individual study purposes, you need to make sure that they do, in fact, meet the needs of your lesson objectives and your students. The written materials accompanying filmstrips can be of value in helping you to prepare your own study guides or worksheets. These can be used in preparing students for a filmstrip, as a basis for class discussion, as a follow-up activity, or to direct individual viewing.

Before using the projector in the classroom, you should have (1) reserved the filmstrip screen (if necessary) and projector well in advance for the time you will need to use them; (2) arranged the physical setting of the room on the day of the presentation so that all students will be able to see the projected image clearly, (3) prechecked and prefocused the projector, and (4) made sure you had a spare bulb available.

When you reach the point in your lesson at which the filmstrip is to be shown, prepare the students for the filmstrip. You can do this by raising questions, pointing out key items to look for, discussing vocabulary, indicating errors or omissions contained in the filmstrip, passing out study guides, etc. Then, show the filmstrip according to your lesson plans.

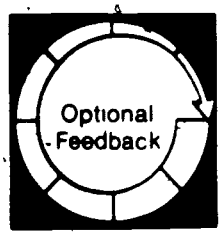


Unless the equipment is in the way, it is best to wait until after you have completed the lesson (discussion, evaluation, summarization, follow-up, etc.) to put the equipment away. In this way, you can be sure that the bulb has cooled, and the operation of the equipment does not interfere with the flow of the lesson.

21

Select a student performance objective in your occupational specialty which could be achieved, at least partially, by using a filmstrip (In a real world situation, you start with an objective and then select the most appropriate materials and/or teaching methods. In this practice situation, however, you need to select an objective that lends itself to using a filmstrip.)

Prepare a detailed lesson plan which includes the use of a filmstrip In your plan, explain what filmstrip(s) will be needed, how it will be used, and when Instead of developing a lesson plan, you may select a lesson plan that you have developed previously, and adapt that plan so that it includes the use of a filmstrip.

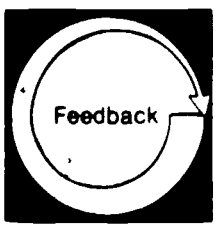


You may wish to have your resource person review the adequacy of your plan He/she could use the Teacher Performance Assessment Form in Module B-4, *Develop a Lesson Plan*, as a guide

Based on your lesson plan, select and obtain the filmstrip(s) you will need to make your presentation. Also, arrange to have a filmstrip projector and a screen available when you make your presentation.

Before presenting your lesson, you may wish to arrange through your resource person to observe a lesson involving the use of a filmstrip which is being presented by a vocational teacher in your service area who is experienced in using filmstrips.

In a simulated classroom situation, present your lesson to your resource person Your resource person will serve two functions (1) he/she will role-play a student to whom you are presenting the lesson, and (2) he/she will evaluate your performance.



Give your resource person the Presentation Checklist Filmstrips, pp. 23-24, before making your presentation in order to ensure that he/she knows what to look for in your lesson

PRESENTATION CHECKLIST: FILMSTRIPS

Directions: Place an X in the NO, PARTIAL, or FULL box to indicate that each of the following performance components was not accomplished, partially accomplished, or fully accomplished. If, because of special circumstances, a performance component was not applicable, or impossible to execute, place an X in the N/A box.

Name _____

Date _____

Resource Person _____

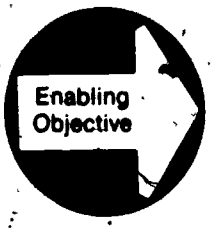
	LEVEL OF PERFORMANCE			
	N/A*	No	Partial	Full
The teacher:				
1. arranged the physical setting in advance in a way that would ensure that all students could both see and hear the presentation clearly	☐	☐	☐	☐
2. had equipment and materials assembled in advance	☐	☐	☐	☐
3. set up the equipment and threaded the filmstrip according to manufacturer's recommendations	☐	☐	☐	☐
4. prechecked and prefocused the equipment	☐	☐	☐	☐
5. had a spare bulb available	☐	☐	☐	☐
6. projected the image on the screen clearly and accurately so that it met the following criteria:				
a. no keystoning effect	☐	☐	☐	☐
b. well focused	☐	☐	☐	☐
c. well centered on the screen	☐	☐	☐	☐
d. readable	☐	☐	☐	☐
7. used a filmstrip which met the following criteria:				
a. content was at students' comprehension level	☐	☐	☐	☐
b. content of the filmstrip was of good quality in terms of artwork, printing, color, etc.	☐	☐	☐	☐
c. filmstrip aided in meeting the objective(s) of the lesson	☐	☐	☐	☐
8. prepared students adequately for the filmstrip (e g , raised key questions, defined terms, etc.)	☐	☐	☐	☐
9. presented the filmstrip at a logical point in the lesson	☐	☐	☐	☐
10 paced the presentation of the filmstrip according to the needs of the lesson and the students	☐	☐	☐	☐
11 clearly emphasized points being presented visually by class discussion or by having someone read subtitles	☐	☐	☐	☐

	N/A	No	Partial	Full
12. summarized (or had class members summarize) the content of the filmstrip	☐	☐	☐	☐
13. obtained student feedback on students' understanding of the filmstrip	☐	☐	☐	☐
14 obtained student feedback on students' evaluation of the filmstrip	☐	☐	☐	☐

LEVEL OF PERFORMANCE: All items must receive FULL, or N/A responses. If any item receives a NO, or PARTIAL response, the teacher and resource person should meet to determine what additional activities the teacher needs to complete in order to reach competency in the weak area(s).

Learning Experience III

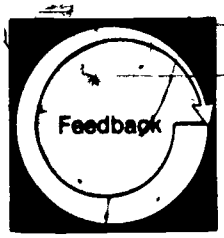
OVERVIEW



After completing the required reading, set up and operate a slide projector.

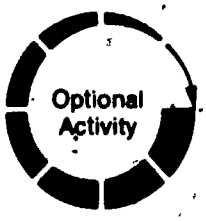
You will be reading the information sheet, Operating the Slide Projector, pp. 26–29.

You will be setting up and operating a slide projector by completing the exercises specified in the Slide Projector Worksheet, pp. 31–35.



You will be evaluating your competency in setting up and operating a slide projector, using the Slide Projector Operation Checklist, pp. 37–38.

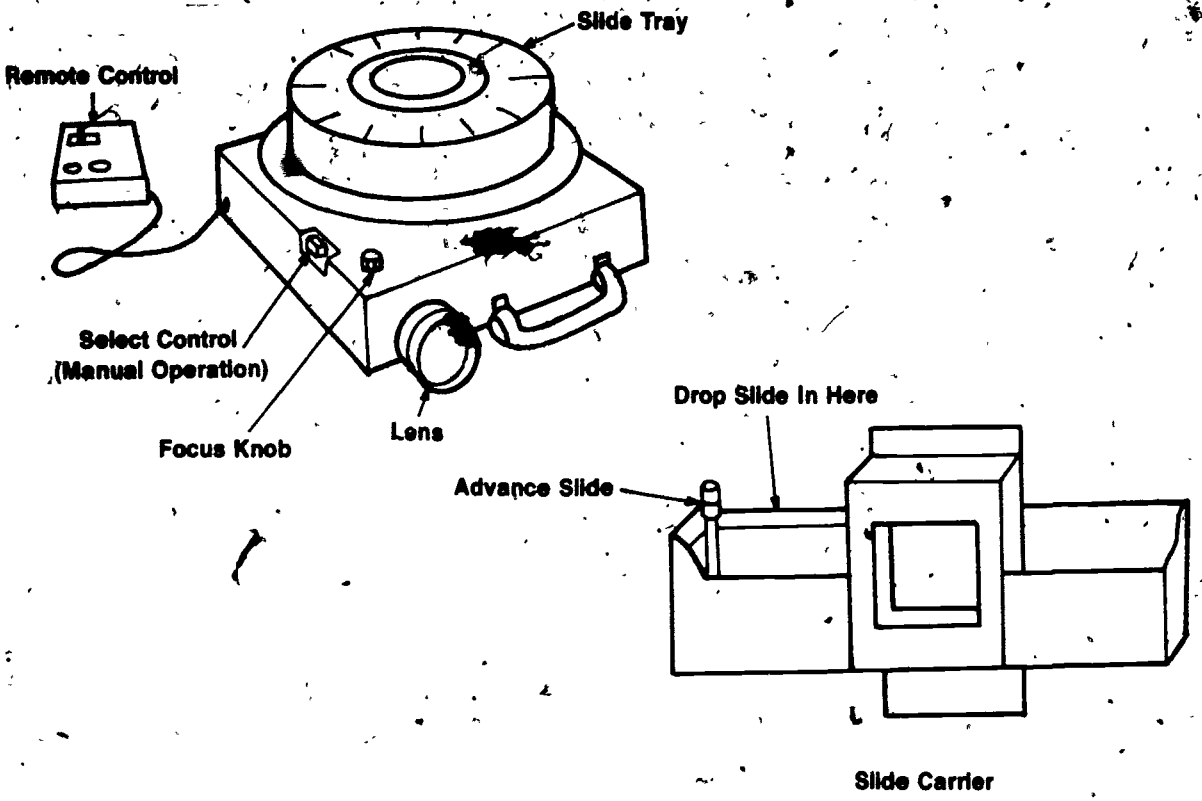
You may wish to locate and meet with a person with expertise in the area of audiovisuals for the purpose of discussing further the uses and operation of slide projectors.



You may wish to either visit an audiovisual equipment dealer or write to a dealer for catalogues describing the latest types of equipment and supplies available.

FIGURE 2

SLIDE EQUIPMENT



Activity

For information explaining how to select, set up, and operate the equipment and materials necessary for a presentation which uses a slide projector, read the following information sheet:

OPERATING THE SLIDE PROJECTOR

Projection Principles

The slide projector also uses a direct projection system: the light travels in a straight line from the lamp . . . through the slide . . . through the lens . . . to the screen. Figure 2 shows one of the most popular slide projectors—the carousel projector with a circular slide tray (magazine)—and the slide carrier which fits into the combination filmstrip/slide projector shown on p. 8.

Projector Placement

As with the filmstrip projector, the slide projector should be placed toward the back of the room on a high table. The projector is placed properly if (1) neither the projector nor the projectionist is blocking students' view; (2) the projected image is well centered on the screen; (3) the projected image is nearly filling the screen; (4) the projected image is clear and well focused; and (5) the projected image is large enough to be seen easily by all viewers.

Projection Materials

For the most part, the slides you will use will probably be 2" by 2" teacher-made or locally-produced slides. The 2 × 2 refers to the overall dimensions of the slide including the cardboard frame. The actual film size is .9" by 1.3". With a 35 millimeter camera and color film, any teacher can take pictures of persons, places, and things specific to his/her own occupational specialty, and these can be developed as slides.

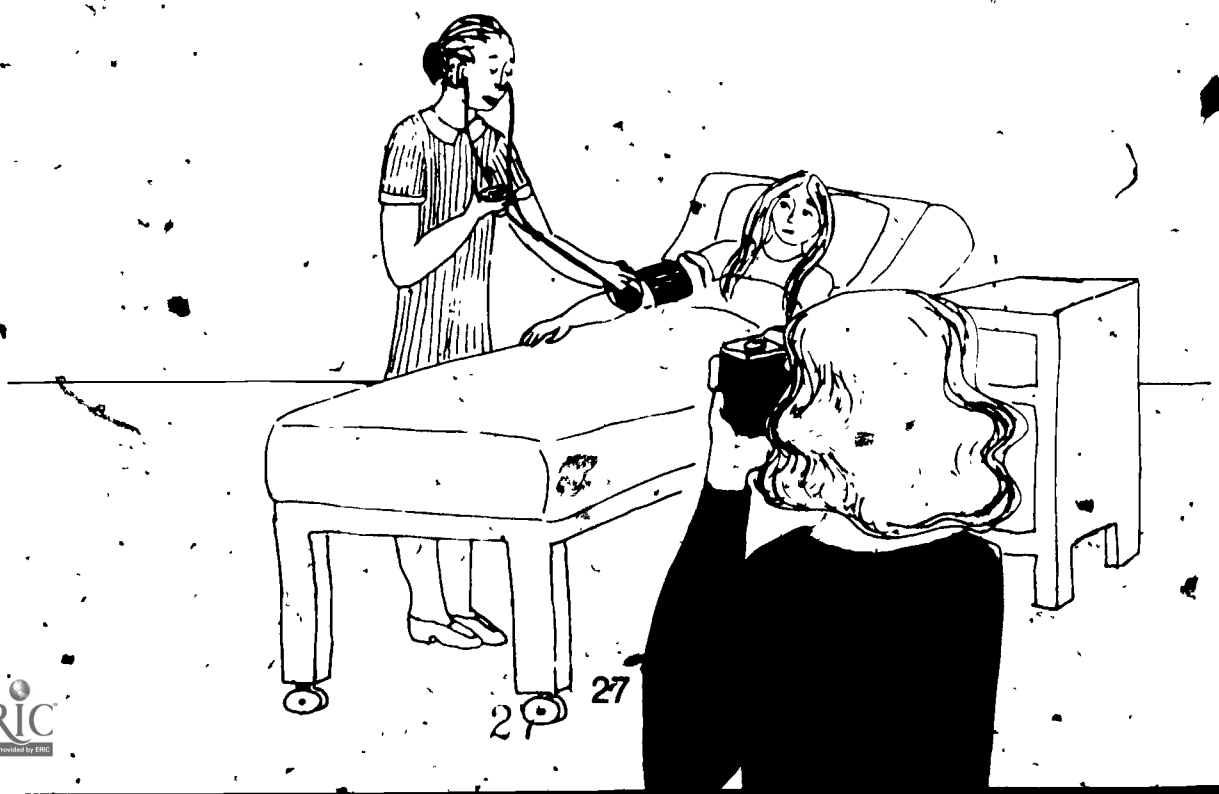
There are a number of sources of teacher-made and commercially-produced slides in the area of education. These include—

- Motion Picture and Educational Markets Division
  Eastman Kodak Co.
  Rochester, New York 14650
- University-based instructional materials centers
- Colleagues

By reviewing catalogues available from these sources or reviewing curriculum guides in your area, you can identify slides which would be appropriate to your lessons.

Operation Procedures

There are a number of different slide projectors



available today. Although the projection principles are the same for each projector, the operation procedures may vary slightly from projector to projector. The projector may be a simple filmstrip/slide projector (see Figure 1 in Learning Experience I), a projector equipped for use with a long rectangular slide magazine, a carousel projector (see Figure 2), or a projector with a circular slide tray which is placed on its side beside the projector.

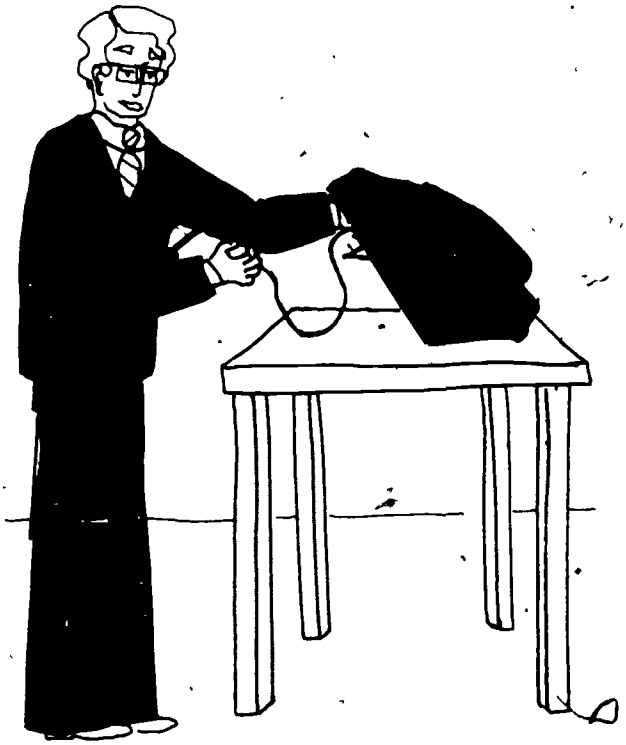
The projector may be equipped for remote control operation, it may be capable of only manual operation, or it may be equipped for both. Newer slide projectors are set up to be operated in combination with tape recorders for slide/tape presentations. The tape is recorded with inaudible beeps (sync pulses) which move the slides along to synchronize with the information being presented on the tape.

If you are going to be working with a filmstrip/slide projector, you will be handling loose slides which you will have to place in the carrier one at a time. These should be arranged in order in advance. With some carriers, you place the slide (always upside down) into the carrier, push the carrier in to show the slide, and then pull the carrier back out to remove the slide and replace it with the next slide.

With other carriers, you place a slide in on the right-hand side of the carrier, and when you push it in to show it, there is a place now on the left-hand side to insert a slide. When you push in the left-hand side, you are showing the second slide while being able to remove the first slide and replace it with the third in the slide slot to the right. This latter system allows for a more continuous presentation.

If you are going to be working with a projector which is equipped for use with magazines, your slide show can be set up in advance. The slides are simply placed, again upside down, into the magazine in the proper order. The tray is then inserted into (or onto) the projector according to directions and advanced manually to the first slide. To advance the slides during the presentation, you simply push a button each time you wish to advance a slide.

Whichever projector you are using, the first step is to remove the projector from its case, if necessary, and to locate the power cord and plug it in. In some projectors, the cord is located in a storage compartment within the projector itself. Next, plug in the remote control if there is one.



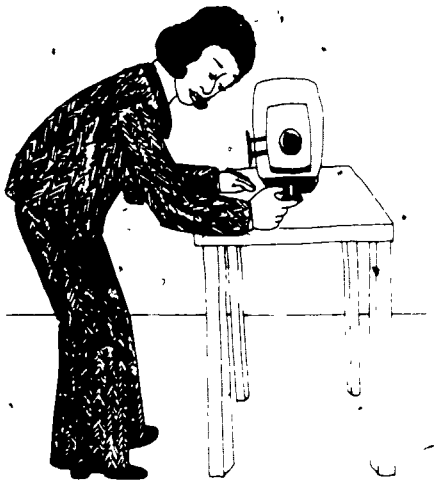
If you have a filmstrip/slide projector, insert the carrier and the first slide, and then turn on the motor and lamp. If you have a projector with a magazine, turn on the machine first, and then insert and position the magazine so that the first slide is showing.

To enlarge the image on the screen, move the projector away from the screen. To reduce the image on the screen, move the projector closer to the screen. To raise or lower the position of the image on the screen, adjust the extendable legs or the elevator control at the front of the machine. To focus the screen image, rotate the lens, or turn the focus knob, depending on the specific projector you are using.

After you are through with your slide presentation, you need to let the machine cool before putting it away. In some machines, you can turn off the machine completely, and the fan will continue to run automatically until the bulb is cooled. In other

machines, you turn off just the lamp. Then, after a few minutes, you can turn off the fan manually. In still other machines, turning off the lamp turns off the fan also. For these machines, you will have to allow the projector to stand until the lamp cools.

Once the lamp is cooled, return the projector to its original state. Depending on which type of projector you are using, this means readjusting the lens, lowering the front of the projector using the elevator control or extendable legs, removing the carrier (if necessary), removing the magazine, unplugging the power cord and returning it to its storage area, and unplugging the remote control.



These are general operating procedures. Before attempting to operate any specific model of slide projector, it is a good idea to check the operating manual for that model.

Projection Screen

In a normal-sized classroom, it is best to use a 70" by 70" square screen with the slide projector. The film image of a slide is not square; it is 9" by 1.3" However, a slide may be projected with the 1.3" side vertically or horizontally. To accommodate either placement, the square screen is best. Since the slide projector is used in a partially darkened room, the type of screen you use—matte, glass beaded, or lenticular—will depend on how your students are seated. For information on the different types of screens, and on the keystone effect, refer to the information sheet, Operating the Filmstrip Projector, p. 10.

Machine Maintenance

The responsibilities of the teacher in maintaining the slide projector are the same as those for the filmstrip projector. This information may be found on p. 10 of the information sheet, Operating the Filmstrip Projector.

NOTES

The following worksheet is designed to help you become competent in operating the slide projector. No one need see this worksheet unless you choose to show it to them, so do not be reluctant to record what actually happens, right or wrong. The sheet is not intended to show proof that you did everything perfectly the first time. It is intended to help you to organize your knowledge about the operation of the slide projector, to help you apply that knowledge to actual equipment, to point out to you where you have gaps in your knowledge, and to help you determine how to fill those gaps. Completed thoughtfully and thoroughly, this sheet should make an excellent reference for you in the future. Read the directions carefully and then complete each of the 24 exercises.

SLIDE PROJECTOR WORKSHEET

Directions: Locate at least one of the following types of slide projectors: filmstrip/slide projector, magazine-type slide projector, carousel projector, or standard slide projector. (If there is slide/tape combination equipment available, you may wish to work with that equipment also, but it is not required.) Also, locate a screen to use with the projector, a group of slides, and a measuring device (e.g., ruler, yardstick, tape measure, etc.). Arrange for the equipment and material to be placed in the room in which you will be working with them. Complete each of the following exercises using the actual equipment and material. Each exercise requires a short response. Please respond fully, but briefly, and make sure you respond to all parts of each item. Do **not** answer simply YES or NO; explain your responses. Should you have any difficulty with an exercise, make a note of that problem.

1. What is the make, model, and type of slide projector with which you are working?

2. Is there an operating manual? Does it contain any information that is different from, or was not covered in, the information sheet? If so, briefly describe that information.

3. What type of table is being used to hold the projector (portability, height, etc.)?

4. Describe the slides you are using (artwork or photos, color or black and white, number of slides, etc.).

5. Describe the type of screen with which you are working (matte, beaded, or lenticular, how is it mounted, what size is it, etc.?).

6. Set up the screen for use. Briefly describe any special procedures involved (e.g., "There is a release button which must first be pushed."). If the screen is portable, where have you placed it and why?

7. What type of lighting are you using in the room? Is this type of lighting appropriate for using the slide projector? Why or why not?

8. Remove the projector from its case and locate the projection lamp. Remove the lamp from the projector and then replace it. Describe the lamp's location and the procedure for removing it.

9. Locate the on/off control on the projector. How many positions does it have and what are they (e.g., "fan," "lamp," etc.)? What type of control is it (e.g., switch, knob, etc.)?

10. Plug the machine in and turn it on. At which positions of the on/off control does the fan operate?

11. Is there a remote control device? If so, describe how to attach it to the projector, what functions it controls, and how to operate it.

12. Is there a timer for automatically advancing the slides? What lengths of time intervals does the timer allow? Describe how to operate it.

13. Does the projector have a separate slide carrier or magazine attachment? If so, describe how to attach the magazine or slide carrier to the projector

14. Using the group of slides you are working with, load them into the projector, carrier, or magazine Describe the procedure for loading the slides and for advancing the slides once they are loaded

15. Draw a rough sketch showing how the slide should be loaded so that the image is projected properly (right side up, etc) onto the screen

16. With a slide in place, focus the image on the screen. Describe the procedure for focusing

17. Raise and/or lower the screen image so that it is centered on the screen. Describe the method for elevating and lowering the image

18. Locate the framing lever. Adjust it and describe what happens to the screen image when the lever is moved Then, frame the image properly.

19. Move the projector gradually closer to the screen, refocusing as you get closer. How close to the screen can you get before either (1) you can no longer get the picture in focus, or (2) the material is too small to see?

20. Move the projector gradually away from the screen, refocusing as you get farther away How far away from the screen can you get before either (1) you can no longer get the picture in focus, or (2) the image is too large for the screen?

21. At what distance (from the screen to projector) do you get the best screen image?

22. Are you using the type and size of screen recommended for use with the slide projector according to this module? If not, is this affecting your ability to project a quality image? How is the quality affected?

23. Assume you have a class of 20 students Arrange the seating, the screen, the projector, and the lighting as you would if you were using the projector to present information to that group of 20 Turn on the projector and project a slide Make any necessary adjustments to the focus, etc **NOTE:** At this point, move to the explanation of Part I in the Feedback that follows

24 Remove the slide and replace the projector and the slide in their cases Then, move to the explanation of Part II in the Feedback that follows

Part I: After you have completed the first 23 items on the worksheet, use Part I of the Slide Projector Operation Checklist, p 37, to evaluate your work **Part II:** After you have completed item 24, use Part II of the Slide Projector Operation Checklist, p 37, to evaluate your work

NOTES

SLIDE PROJECTOR OPERATION CHECKLIST

Name _____

Date _____

Resource Person _____

Directions: Place an X in the YES or NO box to indicate whether each item was performed successfully or not.

Part I

	Yes	No
When you were locating parts on the slide projector, you remembered to:		
1. handle the projection lamp with a soft cloth	☐	☐
2. be careful not to jar the machine (and lamp) while the lamp was hot	☐	☐
When you were loading the slide(s) into the projector, you made sure that:		
3. you handled the slide only by the edges and not on the film area	☐	☐
The slide projector, screen, and room are arranged for the group of 20 so that:		
4. the projector is at the back of the room	☐	☐
5. the projector is on a high table	☐	☐
6. the projector and the projectionist will not block the view of anyone in the class	☐	☐
7. the projected image is large enough for all viewers to see it clearly	☐	☐
8. the image is well centered on the screen	☐	☐
9. there is no keystoning effect produced	☐	☐
10. the room is nearly dark	☐	☐
The projected image is:		
11. clear and sharp	☐	☐
12. bright	☐	☐
13. well focused	☐	☐

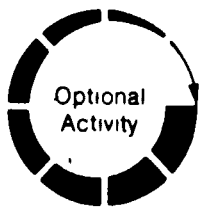
(Return to the worksheet and complete item #24.)

Part II

Before returning the material and the projector to their cases, you:		
14. waited for the bulb to cool	☐	☐
15. returned the lens (focus) and elevator control to their original positions	☐	☐
16. removed the slide carrier or magazine	☐	☐
17. unplugged the machine and stored the cord	☐	☐
18. unplugged the remote control and stored it if necessary	☐	☐

LEVEL OF PERFORMANCE: All items should receive YES responses. If any item receives a NO response, correct that condition using the actual equipment and materials. If you have trouble correcting the condition, check with your resource person or someone with expertise in the area of audiovisuals.

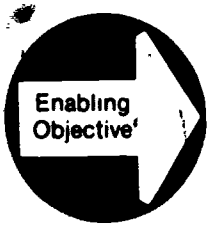
You may wish to contact your resource person, or someone else you or your resource person may know of with expertise in the area of audiovisuals. This person could discuss with you special techniques or helpful hints that can be of use to you when you work with the slide projector.



You may wish to check into the latest advancements in slide projectors and the production of slides. If there is an audiovisual equipment dealership or photography store (or photography department on campus) available in your vicinity, you may wish to visit them and look over their equipment, or to make arrangements to have one of their representatives talk to you. If you cannot make such a visit, you could write to one or more of the major manufacturers of slide cameras or of slide projectors, asking for catalogues.

Learning Experience IV

OVERVIEW

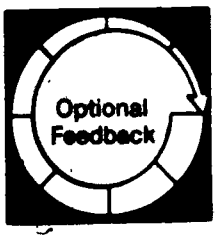


After completing the required reading, present information with slides in a practice situation.

You will be reading the information sheet, Using the Slide Projector as an Instructional Device, pp. 41–43.

You will be selecting an objective in your occupational specialty that lends itself to a slide presentation.

You will be selecting, modifying, or developing a lesson plan designed to achieve that objective using slides to illustrate the lesson.



You may wish to have your resource person review the adequacy of your plan.

You will be obtaining or preparing the necessary slides, and making arrangements to secure the necessary equipment.

You may wish to arrange through your resource person to visit a classroom in which a teacher experienced in the use of slides is presenting information using slide materials and equipment.

You will be presenting your lesson to your resource person.

Your competency in presenting information with slide materials and equipment will be evaluated by your resource person, using the Presentation Checklist: Slides, pp 45–46.

Activity

For information describing the general and specific uses of slide materials and equipment in presenting information, and explaining the procedures for their classroom use, read the following information sheet:

USING THE SLIDE PROJECTOR AS AN INSTRUCTIONAL DEVICE

Slides and filmstrips perform much the same functions in terms of their ability to explain, illustrate, or clarify what you are trying to teach. A slide presentation and a filmstrip presentation are both based on a series of still pictures; movement is not shown. However, while slides have many of the same advantages as filmstrips, many of the disadvantages associated with filmstrips have been eliminated with slides.

Advantages

Like the filmstrip, slides can do many of the same things as a film, but without the motion. Slides, too, can be used to show close-ups of very small items. They can be used to highlight key steps in processes which are hazardous or which occur too rapidly or over too long a period of time to be viewed easily by students in a classroom. Also, they can be used to illustrate abstract concepts.

Unlike filmstrips, however, slides can be teacher-made. Slide cameras are readily available, reasonably inexpensive, and fairly simple to operate. The film can be processed into slides for a moderate price at the local camera store. This means that, with access to a slide camera and with a little know-how, any classroom teacher can produce his/her own slides to meet his/her own needs.

Slide projectors are small, lightweight, quite simple to operate (especially those which hold slide magazines), and relatively inexpensive. Most newer magazine-type projectors include a remote control which allows you to sit where you can best view both students and the screen, while still being able to advance the slides yourself. Some projectors even come with a timer which will advance the slides automatically at pre-set intervals.

Slide projectors can be operated in a room which is not totally darkened; therefore, they can be used in a normal classroom, either for group presentations or individual viewing. Since even those projectors with automatic controls can be operated manually, each slide can be projected for as long as is needed for the class to study or discuss it.

Slides are easy to use, store, and handle, especially if you are using a projector that holds magazines. Once the slides are properly inserted into a magazine, you don't have to worry about showing slides out of sequence. In addition, there is little chance of losing a slide, and you do not have to handle or manipulate the slides at all during the presentation. Since each slide is an individual unit, the order of presentation is not fixed as it is with the filmstrip. You can easily change the order, add slides, eliminate slides, or replace slides of outdated material with new slides.

Slides can be produced with accompanying audiotapes (usually cassettes) which explain or discuss the material on each slide in a sequence. These slide/tapes can be used very effectively with groups or on an individual viewing basis. The tapes can be produced with audible beeps to indicate when the slides are to be advanced or with inaudible beeps which trigger the advancement of the slides automatically.

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Sound-slide equipment is now available which both plays the cassette and projects the slides. When a cassette with an inaudible beep is inserted in the equipment, the beep automatically advances the slides in sequence with the taped presentation.

Slide/tape presentations are ideally suited for individual viewing since the equipment and materials are easy for students to work with, and students who might need assistance reading written material are getting the information orally and visually instead.

Disadvantages

Aside from the limitations inherent in the older types of projectors which require you to insert the slides manually one at a time, there are few disadvantages associated with using slides. As with filmstrips, slides are not as dynamic as films or television presentations, and slide/tape presentations are less flexible than using slides alone. However, neither of these concerns is major, and neither will become a disadvantage if the equipment and materials are being used sensibly and properly.

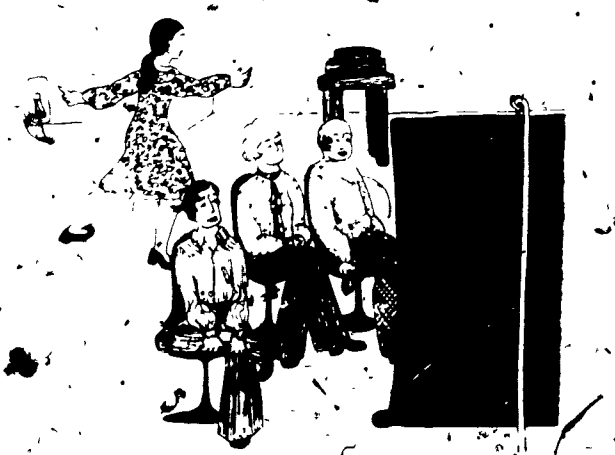
Classroom Procedures

In order for the slide projector to be used effectively, its use must fit the needs of the lesson, and the materials projected must meet the criteria for quality materials. These classroom procedures are nearly identical to those described for the filmstrip projector on pp. 20–21

Two additional points need to be made which are specific to slides and slide projectors. Since the slides often are teacher-made, it is sometimes necessary to do more than just "locate" appropriate slides. Sometimes, the teacher must decide well in advance what slides will be needed so that he/she can take pictures to fit those needs. Secondly, one additional question you might wish to ask in planning a slide presentation is, "Am I going to show the slides straight through, or am I going to be showing the slides (or just a few slides) to illustrate key points periodically throughout the lesson?"

If you plan to use the latter technique, there are some special procedures involved. With the overhead projector, projecting visuals at intervals in a presentation is simple because you are already at the front of the room and the room is fully lighted. With the slide projector, the equipment is at the back of the room and the room lights must be off. Thus, each time you use a slide, the lights must be turned off and someone must turn on the projector and advance the slide. Each time you wish to go on with a part of the presentation which is not illustrated with slides, the lights must be turned on, and someone must turn off the projector.

If you try to do all these manipulations, you'll probably end up running around the room a lot.

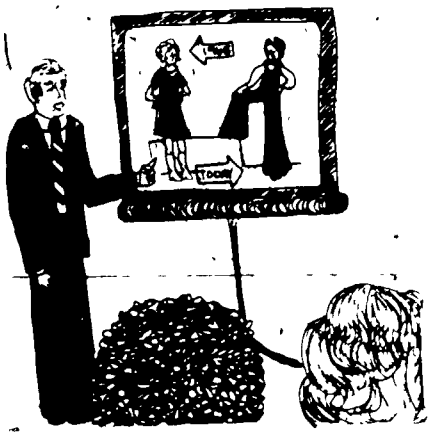


This is distracting to students and does not lend itself to a very smooth or unified presentation. If students are asked to control the lights and equipment, you are asking them also to divide their attention between the presentation and equipment operation. Unless your school has a media crew whose members could come in to assist in this type of presentation, it would probably be best to use some other instructional technique instead.

Specific Applications

In English classes, a ten-year old grammar book is probably still up to date and accurate. Not so in vocational classes. Last year's fashions are probably not the same as this year's fashions. The corn planted ten years ago may have been made obsolete by a new hybrid. A recently invented piece of equipment may change the shop practices described in a ten-year old textbook.

Vocational education changes as the real world changes. Thus, slides are of special value to the vocational education teacher. The home economics teacher can update his/her curricular materials each year with new slides of current fashion designs. Slides can be shown of actual children, some showing physical signs associated with well-balanced diets, some showing signs of malnutrition. Various periods of home furnishings or house designs, and types of equipment used in related occupations can also be illustrated by slides.



The health occupations teacher can use slides taken in hospitals or medical offices to illustrate modern equipment or current practices. Slides of persons suffering from actual injuries, or poor teeth, or specific diseases can help health occupations students learn to recognize symptoms. The agriculture teacher can use slides to aid students in recognizing and identifying breeds of livestock, types of soil, or various kinds of insects, plants, or tools. The cosmetology teacher can use slides to illustrate various hair styles which are currently popular or to show how different hair styles can change the appearance of the same person.

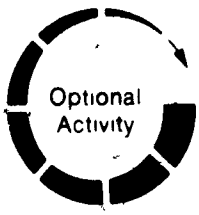
Teachers of wood or metal shop can use slides to illustrate new equipment or tools. They may also use slides to show different views of a completed project or examples of model projects which have been completed. Slides can be used to show students the stages involved in erecting a building using an actual example. All vocational teachers can use slides to take the place of an actual field trip if such a trip is not possible.

Select a student performance objective in your occupational specialty which could be achieved, at least partially, by using slides. (In a real world situation, you start with an objective and then select the most appropriate materials and/or teaching methods. In this practice situation, however, you need to select an objective that lends itself to using slides.)

Prepare a detailed lesson plan which includes the use of slides. In your plan, explain what slides will be needed, how they will be used, and when. Instead of developing a lesson plan, you may select a lesson plan that you have developed previously, and adapt that plan so that it includes the use of slides.

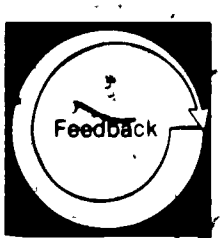
You may wish to have your resource person review the adequacy of your plan. He/she could use the Teacher Performance Assessment Form in Module B–4, *Develop a Lesson Plan*, as a guide.

Based on your lesson plan, select, obtain, or prepare the slides you will need to make your presentation. Also, arrange to have a slide projector and a screen available when you make your presentation.



Before presenting your lesson, you may wish to arrange through your resource person to observe a lesson involving the use of slides which is being presented by a vocational teacher in your service area who is experienced in using (or perhaps preparing) slides.

In a simulated classroom situation, present your lesson to your resource person. Your resource person will serve two functions (1) he/she will role-play a student to whom you are presenting the lesson, and (2) he/she will evaluate your performance.



Give your resource person the Presentation Checklist. Slides, pp. 45–46, before making your presentation in order to ensure that he/she knows what to look for in your lesson.

PRESENTATION CHECKLIST: SLIDES

Directions: Place an X in the NO, PARTIAL, or FULL box to indicate that each of the following performance components was not accomplished, partially accomplished, or fully accomplished. If, because of special circumstances, a performance component was not applicable, or impossible to execute, place an X in the N/A box.

Name

Date

Resource Person

The teacher:	LEVEL OF PERFORMANCE			
	N/A	No	Partial	Full
1. arranged the physical setting in advance in a way that would ensure that all students could both see and hear the presentation clearly	☐	☐	☐	☐
2. had equipment and materials assembled in advance	☐	☐	☐	☐
3. set up the equipment and loaded the slides according to manufacturer's recommendations	☐	☐	☐	☐
4. prechecked and prefocused the equipment	☐	☐	☐	☐
5. had a spare bulb available	☐	☐	☐	☐
6. projected the image on the screen clearly and accurately so that it met the following criteria:				
a. no keystoning effect	☐	☐	☐	☐
b. well focused	☐	☐	☐	☐
c. well centered on the screen	☐	☐	☐	☐
d. readable	☐	☐	☐	☐
7. used slides which met the following criteria				
a. content of the slides was simple	☐	☐	☐	☐
b. content was at students' comprehension level	☐	☐	☐	☐
c. content of the slides was of good quality in terms of color, clarity, contrast, etc.	☐	☐	☐	☐
d. slides aided in meeting the objective(s) of the lesson	☐	☐	☐	☐
8. prepared students adequately for the slide presentation (e.g., raised key questions, defined terms, etc.)	☐	☐	☐	☐
9. presented slides in a logical sequence	☐	☐	☐	☐
10. presented the slides at a logical point in the lesson	☐	☐	☐	☐
11. paced the slide presentation according to the needs of the lesson and of the students	☐	☐	☐	☐

	N/A	No	Partial	Full
12. clearly emphasized and explained points being made visually	☐	☐	☐	☐
13. used the on/off switch to control attention (if appropriate)	☐	☐	☐	☐
14. summarized (or had class members summarize) the slide presentation	☐	☐	☐	☐
15 obtained student feedback on students' understanding of the slide presentation	☐	☐	☐	☐
16. obtained student feedback on students' evaluation of the slide presentation	☐	☐	☐	☐

LEVEL OF PRESENTATION: All items must receive FULL, or N/A responses If any item receives a NO, or PARTIAL response, the teacher and the resource person should meet to determine what additional activities the teacher needs to complete in order to reach competency in the weak area(s).

Learning Experience V

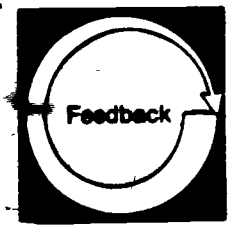
FINAL EXPERIENCE

In an **actual school situation,*** present information with filmstrips and slides.

As you plan your lessons, decide when filmstrips and slides could be used effectively to aid you in meeting the lesson objectives. Based on those decisions, present information with filmstrips and slides. This will include—

- deciding if you wish to teach a **single lesson** which incorporates the use of both techniques; or if you wish to teach **two lessons,** one using a filmstrip and one using slides
- selecting, modifying, or developing a lesson plan(s) which includes the use of these techniques
- selecting, obtaining, or preparing the necessary materials
- securing the necessary equipment
- presenting the lesson(s) to the class

NOTE: Your resource person may want you to submit your written lesson plan(s) to him/her for evaluation before you present your lesson(s). It may be helpful for your resource person to use the TPAF from Module B–4, *Develop a Lesson Plan*, to guide his/her evaluation.



Arrange in advance to have your resource person observe your lesson presentation(s).

Your total competency will be assessed by your resource person, using the Teacher Performance Assessment Form, pp. 49–52.

Based upon the criteria specified in this assessment instrument, your resource person will determine whether you are competent in presenting information with filmstrips and slides.

*For a definition of "actual school situation" see the inside back cover

NOTES

TEACHER PERFORMANCE ASSESSMENT FORM

Present Information with Filmstrips and Slides (C-24)

Name _____

Date _____

Resource Person _____

Directions: Indicate the level of the teacher's accomplishment by placing an X in the appropriate box under the LEVEL OF PERFORMANCE heading. If, because of special circumstances, a performance component was not applicable, or impossible to execute, place an X in the N/A box.

	LEVEL OF PERFORMANCE					
Filmstrips	N/A	None	Poor	Fair	Good	Excellent
The teacher:						
1. arranged the physical setting in advance in a way that would ensure that all students could both see and hear the presentation	☐	☐	☐	☐	☐	☐
2. had equipment and materials assembled in advance	☐	☐	☐	☐	☐	☐
3. set up the equipment and threaded the filmstrip according to manufacturer's recommendations	☐	☐	☐	☐	☐	☐
4. prechecked and prefocused the equipment	☐	☐	☐	☐	☐	☐
5. had a spare bulb available	☐	☐	☐	☐	☐	☐
6. projected the image on the screen clearly and accurately so that it met the following criteria						
a. no keystoning effect	☐	☐	☐	☐	☐	☐
b. well focused	☐	☐	☐	☐	☐	☐
c. well centered on the screen	☐	☐	☐	☐	☐	☐
d. readable	☐	☐	☐	☐	☐	☐
7. used a filmstrip which met the following criteria						
a. content was at students' comprehension level	☐	☐	☐	☐	☐	☐
b. content of the filmstrip was of good quality in terms of artwork, printing, color, etc.	☐	☐	☐	☐	☐	☐
c. filmstrip aided in meeting the objective(s) of the lesson	☐	☐	☐	☐	☐	☐
8. prepared students adequately for the filmstrip(s) (e.g., raised key questions, defined terms, etc.)	☐	☐	☐	☐	☐	☐
9. presented the filmstrip at a logical point in the lesson	☐	☐	☐	☐	☐	☐
10. paced the presentation of the filmstrip according to the needs of the lesson and the students	☐	☐	☐	☐	☐	☐

	N/A	None	Poor	Fair	Good	Excellent
11. clearly emphasized points being presented visually by class discussion or by having someone read subtitles	☐	☐	☐	☐	☐	☐
12. summarized (or had class members summarize) the content of the filmstrip	☐	☐	☐	☐	☐	☐
13. obtained student feedback on students' understanding of the filmstrip	☐	☐	☐	☐	☐	☐
14. obtained student feedback on students' evaluation of the filmstrip	☐	☐	☐	☐	☐	☐

Slides

The teacher:

15. arranged the physical setting in advance in a way that would ensure that all students could both see and hear the presentation clearly	☐	☐	☐	☐	☐	☐
16. had equipment and materials assembled in advance	☐	☐	☐	☐	☐	☐
17. set up the equipment and loaded the slides according to manufacturer's recommendations	☐	☐	☐	☐	☐	☐
18. prechecked and prefocused the equipment	☐	☐	☐	☐	☐	☐
19. had a spare bulb available	☐	☐	☐	☐	☐	☐
20. projected the image on the screen clearly and accurately so that it met the following criteria						
a. no keystoning effect	☐	☐	☐	☐	☐	☐
b. well focused	☐	☐	☐	☐	☐	☐
c. well centered on the screen	☐	☐	☐	☐	☐	☐
d. readable	☐	☐	☐	☐	☐	☐

	N/A	None	Poor	Fair	Good	Excellent
20. The teacher used the writing surface of the flip chart efficiently	☐	☐	☐	☐	☐	☐
21. If complex or lengthy materials were presented using the flip chart, the teacher wrote or drew these materials on the flip chart before class	☐	☐	☐	☐	☐	☐
22. If the teacher had material on the flip chart which was not to be covered until later in the lesson, the teacher kept the material covered prior to using it	☐	☐	☐	☐	☐	☐
23. The teacher effectively used the flip chart to do at least one of the following.						
a. present facts, principles, or concepts	☐	☐	☐	☐	☐	☐
b. illustrate concepts, ideas, or processes by means of diagrams, drawings, charts, graphs, sketches, maps, or cartoons	☐	☐	☐	☐	☐	☐
c. emphasize key factors by outlining	☐	☐	☐	☐	☐	☐
d. present assignments, announcements, definitions, problems to be solved, etc	☐	☐	☐	☐	☐	☐
e. list key words, rules, steps, procedures, or policies	☐	☐	☐	☐	☐	☐
f. present information step by step, one sheet at a time	☐	☐	☐	☐	☐	☐
g. present information to small groups	☐	☐	☐	☐	☐	☐
24. The teacher used the following special applications (optional):						
a. transferred an image to the flip chart using an opaque projector	☐	☐	☐	☐	☐	☐
b. used cartoons, stick figures, oval heads, etc., to focus attention on specific moods and emotions	☐	☐	☐	☐	☐	☐
c. used the flip chart to present information during a field trip	☐	☐	☐	☐	☐	☐

LEVEL OF PERFORMANCE: All items must receive N/A, GOOD, or EXCELLENT responses. If any item receives a NONE, POOR, or FAIR response, the teacher and resource person should meet to determine what additional activities the teacher needs to complete in order to reach competency in the weak area(s).

LEVEL OF PERFORMANCE: All items must receive N/A, GOOD, or EXCELLENT responses. If any item receives a NONE, POOR, or FAIR response, the teacher and resource person should meet to determine what additional activities the teacher needs to complete in order to reach competency in the weak area(s).

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ABOUT USING THE CENTER'S PBTE MODULES

Organization

Each module is designed to help you gain competency in a particular skill area considered important to teaching success. A module is made up of a series of learning experiences, some providing background information, some providing practice experiences, and others combining these two functions Completing these experiences should **enable** you to achieve the **terminal** objective in the final learning experience The final experience in each module always requires you to demonstrate the skill in an actual school situation when you are an intern, a student teacher, or an inservice teacher

Procedures

Modules are designed to allow you to individualize your teacher education program You need to take only those modules covering skills which you do not already possess Similarly, you need not complete any learning experience within a module if you already have the skill needed to complete it Therefore, before taking any module, you should carefully review (1) the Introduction, (2) the Objectives listed on p 4, (3) the Overviews preceding each learning experience, and (4) the Final Experience After comparing your present needs and competencies with the information you have read in these sections, you should be ready to make one of the following decisions.

- that you do not have the competencies indicated, and should complete the entire module
- that you are competent in one or more of the enabling objectives leading to the final learning experience, and thus can omit that (those) learning experience(s)
- that you are already competent in this area, and ready to complete the final learning experience in order to "test out"
- that the module is inappropriate to your needs at this time

When you are ready to take the final learning experience **and** have access to an actual school situation, make the necessary arrangements with your resource person If you do not complete the final experience successfully, meet with your resource person and arrange (1) to repeat the experience, or (2) complete (or review) previous sections of the module or other related activities suggested by your resource person before attempting to repeat the final experience

Options for recycling are also available in each of the learning experiences preceding the final experience Any time you do not meet the minimum level of performance required to meet an objective you and your resource person may meet to select activities to help you reach competency This could involve (1) completing parts of the module previously skipped, (2) repeating activities, (3) reading supplementary resources or completing additional activities suggested by the resburce person, (4) designing your own learning experience, or (5) completing some other activity suggested by you or your resource person

Terminology

Actual School Situation refers to a situation in which you are actually working with, and responsible for, secondary or post-secondary vocational students in a real school. An intern, a student teacher, or an inservice teacher would be functioning in an actual school situation If you do **not** have access to an actual school situation when you are taking the module, you can complete the module **up to** the final learning experience You would then do the final learning experience later, i e , when you have access to an actual school situation

Alternate Activity or Feedback refers to an item or feedback device which may **substitute** for required items which, due to special circumstances, you are unable to complete

Occupational Specialty refers to a specific area of preparation within a vocational service area (e g , the service area Trade and Industrial Education includes occupational specialties such as automobile mechanics, welding, and electricity)

Optional Activity or Feedback refers to an item which is not required, but which is designed to **supplement** and enrich the required items in a learning experience.

Resource Person refers to the person in charge of your educational program, the professor, instructor, administrator, supervisor, or cooperating/supervising/classroom teacher who is guiding you in taking this module

Student refers to the person who is enrolled and receiving instruction in a secondary or post-secondary educational institution

Vocational Service Area refers to a major vocational field agricultural education, business and office education, distributive education, health occupations education, home economics education, industrial arts education, technical education, or trade and industrial education

You or the Teacher refers to the person who is taking the module

Levels of Performance for Final Assessment

N/A The criterion was not met because it was **not applicable** to the situation.

None **No attempt** was made to meet the criterion, although it was relevent

Poor The teacher is unable to perform **this** skill or has only **very limited ability** to perform it

Fair The teacher is unable to perform this skill in an acceptable manner, but has **some ability** to perform it

Good The teacher is able to perform this skill in an **effective** manner

Excellent The teacher is able to perform this skill in a **very effective** manner

Titles of The Center's Performance-Based Teacher Education Modules

A-1 Prepare for a Community Survey
A-2 Conduct a Community Survey
A-3 Report the Findings of a Community Survey
A-4 Organize an Occupational Advisory Committee
A-5 Maintain an Occupational Advisory Committee
A-6 Develop Program Goals and Objectives
A-7 Conduct an Occupational Analysis
A-8 Develop a Course of Study
A-9 Develop Long-Range Program Plans
A-10 Conduct a Student Follow-Up Study
A-11 Evaluate Your Vocational Program

Category B: Instructional Planning

B-1 Determine Needs and Interests of Students
B-2 Develop Student Performance Objectives
B-3 Develop a Unit of Instruction
B-4 Develop a Lesson Plan
B-5 Select Student Instructional Materials
B-6 Prepare Teacher-Made Instructional Materials

Category C: Instructional Execution

C-1 Direct Field Trips
C-2 Conduct Group Discussions, Panel Discussions, and Symposiums
C-3 Employ Brainstorming, Buzz Group, and Question Box Techniques
C-4 Direct Students in Instructing Other Students
C-5 Employ Simulation Techniques
C-6 Guide Student Study
C-7 Direct Student Laboratory Experience
C-8 Direct Students in Applying Problem-Solving Techniques
C-9 Employ the Project Method
C-10 Introduce a Lesson
C-11 Summarize a Lesson
C-12 Employ Oral Questioning Techniques
C-13 Employ Reinforcement Techniques
C-14 Provide Instruction for Slower and More Capable Learners
C-15 Present an Illustrated Talk
C-16 Demonstrate a Manipulative Skill
C-17 Demonstrate a Concept or Principle
C-18 Individualize Instruction
C-19 Employ the Team Teaching Approach
C-20 Use Subject Matter Experts to Present Information
C-21 Prepare Bulletin Boards and Exhibits
C-22 Present Information with Models, Real Objects, and Flannel Boards
C-23 Present Information with Overhead and Opaque Materials
C-24 Present Information with Filmstrips and Slides
C-25 Present Information with Films
C-26 Present Information with Audio Recordings
C-27 Present Information with Televised and Videotaped Materials
C-28 Employ Programmed Instruction
C-29 Present Information with the Chalkboard and Flip Chart

Category D: Instructional Evaluation

D-1 Establish Student Performance Criteria
D-2 Assess Student Performance: Knowledge
D-3 Assess Student Performance: Attitudes
D-4 Assess Student Performance: Skills
D-5 Determine Student Grades
D-6 Evaluate Your Instructional Effectiveness

Category E: Instructional Management

E-1 Project Instructional Resource Needs
E-2 Manage Your Budgeting and Reporting Responsibilities
E-3 Arrange for Improvement of Your Vocational Facilities
E-4 Maintain a Filing System
E-5 Provide for Student Safety
E-6 Provide for the First Aid Needs of Students
E-7 Assist Students in Developing Self-Discipline
E-8 Organize the Vocational Laboratory
E-9 Manage the Vocational Laboratory

Category F: Guidance

F-1 Gather Student Data Using Formal Data-Collection Techniques
F-2 Gather Student Data Through Personal Contacts
F-3 Use Conferences to Help Meet Student Needs
F-4 Provide Information on Educational and Career Opportunities
F-5 Assist Students in Applying for Employment or Further Education

Category G: School-Community Relations

G-1 Develop a School-Community Relations Plan for Your Vocational Program
G-2 Give Presentations to Promote Your Vocational Program
G-3 Develop Brochures to Promote Your Vocational Program
G-4 Prepare Displays to Promote Your Vocational Program
G-5 Prepare News Releases and Articles Concerning Your Vocational Program
G-6 Arrange for Television and Radio Presentations Concerning Your Vocational Program
G-7 Conduct an Open House
G-8 Work with Members of the Community
G-9 Work with State and Local Educators
G-10 Obtain Feedback about Your Vocational Program

Category H: Student Vocational Organization

H-1 Develop a Personal Philosophy Concerning Student Vocational Organizations
H-2 Establish a Student Vocational Organization
H-3 Prepare Student Vocational Organization Members for Leadership Roles
H-4 Assist Student Vocational Organization Members in Developing and Financing a Yearly Program of Activities
H-5 Supervise Activities of the Student Vocational Organization
H-6 Guide Participation in Student Vocational Organization Contests

Category I: Professional Role and Development

I-1 Keep Up-to-Date Professionally
I-2 Serve Your Teaching Profession
I-3 Develop an Active Personal Philosophy of Education
I-4 Serve the School and Community
I-5 Obtain a Suitable Teaching Position
I-6 Provide Laboratory Experiences for Prospective Teachers
I-7 Plan the Student Teaching Experience
I-8 Supervise Student Teachers

Category J: Coordination of Cooperative Education

J-1 Establish Guidelines for Your Cooperative Vocational Program
J-2 Manage the Attendance, Transfers, and Terminations of Co-Op Students
J-3 Enroll Students in Your Co-Op Program
J-4 Secure Training Stations for Your Co-Op Program
J-5 Place Co-Op Students on the Job
J-6 Develop the Training Ability of On-the-Job Instructors
J-7 Coordinate On-the-Job Instruction
J-8 Evaluate Co-Op Students' On-the-Job Performance
J-9 Prepare for Students' Related Instruction
J-10 Supervise an Employer-Employee Appreciation Event

RELATED PUBLICATIONS

Student Guide to Using Performance-Based Teacher Education Materials
Resource Person Guide to Using Performance-Based Teacher Education Materials
Guide to the Implementation of Performance-Based Teacher Education

For information regarding availability and prices of these materials contact

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